The Invention as Claimed

Claims 6-11 define a recording medium constructed so that, using one light beam, it is possible to determine ("judge") which of two track adjacent areas (whether a land or a groove) is selected for reading or recording. This judging is independent of the depth of a groove between lands, the wavelength of the light, the recorded information, or whether information is being read or recorded on a given land or groove.

These advantages are produced using judging or adjusting areas 12 as shown in Fig. 8. In these judging areas 12, the tracks are formed as shown in Figs. 7(a), 9(a) or 10(a) as lands. These illustrated track constructions all include an "outer radius" land L1 and "inner radius" land L2 separated by a groove. Information is recorded and reproduced, in this illustrated embodiment, into/from lands L1 and L2.

Using only these physical characteristics of the recording medium, independent of the depth of the groove, one can determine whether the selected track is the land L1 or L2 at the outer or inner radius of the illustrated groove.

This recording medium construction, when interrogated by a single light beam, and the light-medium interaction detected as described in the specification, produces a first (difference) wobble signal and second (same) wobble signal. In the embodiment shown in Fig. 7, when the light beam is on the track area defined by land L1 (as MB1 in Fig. 7(a)), the first and second wobble signals produced by the recording medium constructions produce the outputs shown in Fig. 7(b) and 7(c). When the light beam is on the track area defined by land L2 (e.g. beam spot MB2 in Fig. 7(a)), the first and second wobble signals produced by the recording medium construction produce the outputs shown in Figs. 7(d) and 7(e). The outputs in Figs. 7(b) and 7(c) are in phase with one another. The outputs in Fig. 7(d) and 7(e) are out of phase with one another. This difference in "wobbling polarity", being in phase or out of phase, identifies whether one is a land L1 or land L2. This construction is the "adjusting area showing a correspondence of a wobbling polarity to a track area" defined in claim 6.

Stated in other words, by comparing the phases of the first wobbling signal and the second wobbling signal, it can be judged whether the wobbled side wall of the track is at an inner or outer radius of the track (wobbling polarity judgment). This makes it possible to judge whether the track on which the light spot is currently radiated is the land L1 or land L2 (a track region judgment).

It is significant that the judgment as to the first track area and the second track area is based on a physical property (wobbling signal amplitude, total signal level, or the like) which is independent of the depth of the groove. Using the result of the judgment, an adjusting area is formed at the radially innermost and outermost areas of the recording medium disc. The adjusting area shows the correspondence of the wobbling property to the track area. This makes it easy to set the correspondence of the wobbling property to the track area. (Specification page 37, lines 5 to 12, and page 41, lines 12-23).

By providing this adjusting area, the correspondence of the wobbling polarity to the track area can be initialized for each recording medium, thereby making it possible to set a new correspondence of the wobbling polarity to the track area. As a result, this invention can omit a reference recording medium heretofore used in adjusting the correspondence of the wobbling polarity to the track area (Specification, page 11, line 17 to page 18, the top line).

The Fuji reference relates to an optical recording medium comprising a recording track between a pair of side walls 4, 7. The recording track defines a boundary between a groove 2 formed on the surface of the optical recording medium 1, and lands 3, 6 adjacent to the groove 2. Optically-detectable notches 5 are formed on one of the side walls 4, 7 of the track wobbling at a predetermined frequency, the notches 5 being continuous at intervals along the track.

The track with groove 2 having the sidewalls 4 therebetween is wobbled to produce a wobble signal. The notches 5 are formed at a different frequency from the wobbling frequency. The notches make it possible to record information at the same information bit position always, no matter how many times the recording medium is

rewritten. This eliminates the necessity in conventional discs of a gap area and a buffer area on the optical disc, and realizes more effective use of the recording area (see, e.g., Figure 1 of Fuji and its Abstract).

The present invention and the Fuji reference do belong to the same field of optical recording medium and optical recording/reproducing devices. The reference has a track wobbling according to at least one of rotation synchronization information and address information. In this limited aspect, the reference uses features also used in the present invention such as the wobbling signal (address information, rotation synchronization information).

However, the object of the Fuji disc construction is to provide an optical recording medium and optical recording/reproducing device which allows recording of information with absolute position precision equal to a bit unit. Fuji uses an arrangement in which the notch bit of the track is formed at a frequency in addition to, and different from, the wobbling signal, and the recording/reproducing clock is generated in synchronism with the detected notch bit. This object (or effect) of the present invention, in contrast, is to eliminate the need of the reference recording medium for adjusting the correspondence between the wobbling polarity and the track area.

To attain its object, the Fuji reference uses a disc construction arranged such that the notch bit of the track are periodically formed in addition to the wobbling signal. The present invention has no comparable notch bits, and is not designed to give positional information with notch bit precision.

Moreover, the Fuji reference does not teach structure that can create a wobbling polarity, such as discussed above with reference to Fig. 7(a)-7(e), and defined by the pending claims. (Note that claim 6 is directed to the situation where the track areas are lands; claim 9 defines the track area as a wobbling groove.)

In sum, the reference and the present invention are totally different in both their objects, construction and mode of operation.

In view of the above remarks, applicant urges that the pending claims define patentable subject matter over the art of record, and that the pending application is otherwise in condition for allowance.

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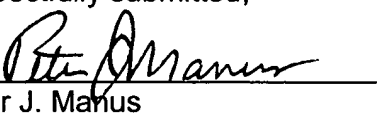
Respectfully submitted,

By 

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